

**North Carolina Department of Health and Human Services
Division of Public Health**

Annual Report to the North Carolina Medical Society

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State of North Carolina

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Department of Health and Human Services

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Background

General Statute 130A.33 requires the State Health Director to submit an annual report on public health at the general session of the annual meeting of the North Carolina Medical Society held conjointly with the Commission for Public Health meeting. This report serves this statutory requirement and is structured around North Carolina's state health improvement plan, Healthy North Carolina 2020.

Healthy North Carolina 2020: The State's Health Improvement Plan

North Carolina's overall 2012 health ranking is 33rd in the nation, up from 35th in 2011 according to the America's Health Rankings, 2012.¹ This national health ranking authority identifies areas of challenge for North Carolina as low per capita public health funding, high prevalence of diabetes, high infant mortality rates and high prevalence of low birth weight.

The burden of premature morbidity and mortality reflected in our ranking highlighted the need for improvements in population health. More than two-thirds of all deaths annually in North Carolina have been attributable to chronic diseases and injuries.² The North Carolina State Center for Health Statistics has listed the top five causes of death as cancer, heart disease, chronic lung disease, stroke and injury.³ North Carolina has consistently received low rankings from the America's Health Rankings for health outcomes, health behaviors, access to care and socioeconomic factors influencing health status.⁴

The burden of diseases related to preventable behaviors in our state has been great. The direct medical cost in North Carolina attributable to these behaviors has been estimated at approximately \$7 billion annually, according to NC Prevention Partners.⁵

A practical approach to address North Carolina's health care challenges has been to attempt to prevent these problems from occurring in the first place. Investing in prevention has been determined to save lives, reduce disability, and, in some cases, reduce health care costs as stated in the *Prevention Action Plan for North Carolina*.⁶ This statewide focus on prevention has been reflected in work by North Carolina's public health leaders, who began in 2008 to develop a vision and roadmap for focusing and improving public health efforts. The *Prevention Action Plan for North Carolina* (2009) also recognized evidence-based strategies as an important mechanism to improve population health.

North Carolina used this prevention framework to establish our state's Healthy North Carolina 2020 (Healthy NC 2020) objectives, the most recent iteration of decennial health objectives our state has set beginning in 1990. The primary aim of this objective-setting process is to mobilize the state to achieve a common set of health objectives. Healthy People 2020 (www.healthypeople.gov) is a federal initiative with science-based, 10-year national objectives for improving the health of all Americans. Healthy North Carolina 2020 is a state health

improvement plan with state specific, measurable objectives that were developed with the best available data and evidence. North Carolina's objectives are well aligned with federal objectives, though they were developed separately.

Healthy North Carolina 2020: A Better State of Health (2011) identified 40 objectives necessary to improve population health by 2020 and recommended the use of evidence-based strategies.⁷ Healthy NC 2020 serves as our state's health improvement plan, which was designed to address and improve our state's most pressing health priorities. These objectives provided a common set of health indicators that organizations and individuals across the state can address, knowing their efforts are designed to lead to a healthier population. Each Healthy NC 2020 objective has had a discrete quantifiable target that has enabled us to monitor progress toward achieving our goals. Appendix A provides a list of the 40 objectives, our state's targets and most current measures, and national measures for comparison (when available and applicable).

Steps Taken by State and Non-State Entities to Meet Healthy NC 2020 Goals

The mission of the Department of Health and Human Services (DHHS) Division of Public Health (DPH) is to promote and contribute to the highest possible level of health for all North Carolinians. North Carolina's public health system is an integrated network of partnerships among DPH and the state's 85 local health departments, as well as state agencies, universities and non-governmental entities. Programs and services touch all citizens' lives in all 100 counties. Improving the health of our citizens requires a coordinated approach with ownership by and accountability from governmental and non-governmental entities as well as individuals themselves.

Local health departments and their community health partners complete health assessments every three or four years and develop local community health improvement plans to address the health needs of their citizens. Review of the most current community health assessments and improvement plans for local health departments indicated a core of 12 Healthy NC 2020 objectives that have been selected by most local health departments as their most pressing health problems. Appendix B provides disaggregated data by county, when available, for these 12 Healthy NC 2020 objectives.

All DPH programs and services have supported improvements in health as measured by the 40 Healthy NC 2020 objectives. The following is a representative though not exhaustive summary of programs and services addressing the 12 Healthy NC 2020 objectives most frequently selected by local communities as their most pressing health issues. Two additional indicators included in this report are being addressed by the state health department.

Healthy NC 2020 Objectives

- ❖ *Decrease the percentage of adults who are current smokers*
- ❖ *Decrease the percentage of high school students reporting current use of any tobacco product*
- ❖ *Decrease the percentage of people exposed to secondhand smoke in the workplace in the past seven days*

DPH's Tobacco Prevention and Control program has made progress on the Healthy NC 2020 Objectives for Tobacco Use by working with organizations and communities to build support for evidence-based policies and programs. Highlights include: 1) QuitlineNC enrollments continue to increase as tobacco users want to quit and providers are increasingly referring to QuitlineNC, which now has recurring funding. In 2012, 18,712 tobacco users enrolled in QuitlineNC. The return on investment (ROI) for the State Health Plan's investment in QuitlineNC services for its members has been \$4 for every \$1 invested. 2) North Carolina's high school smoking rate decreased from 27.3 percent to 15.5 percent with the investment of Master Settlement Agreement funds for teen tobacco prevention 2003-2011, reversing a trend. The challenge for 2020 is to maintain that downward trend for all tobacco products. 3) Following the successful implementation of the 2010 North Carolina smoke-free restaurants and bars law, North Carolina documented a 21 percent decline in average weekly Emergency Department (ED) visits for heart attacks. Building on the success of smoke-free government buildings and prisons, as well as the smoke-free restaurant and bars law, smoke-free places are increasingly the norm. Smoke-free trends are increasing as local communities are making government buildings, grounds and public places smoke-free. Public health is assisting affordable housing owners and managers who want to go smoke-free to reduce smoking related costs due to fire, turnover and cleaning. Public Health has assisted Mental Health and Substance Abuse state facilities to successfully pilot smoke-free buildings and grounds and is providing tobacco cessation support to patients and staff.

Healthy NC 2020 Objectives

- ❖ *Increase the percentage of high school students who are neither overweight nor obese*
- ❖ *Increase the percentage of adults getting the recommended amount of physical activity*
 - ◆ **Physical Activity and Nutrition** programs in DPH have helped to make communities, worksites and schools healthier places to live, earn and learn. These services have encouraged changes to policies and environments to help community members eat smart, move more and achieve a healthy weight. Creating walking trails, starting community gardens and creating workplace policies to encourage employees to be more active are some examples of efforts undertaken in our state. DPH has undertaken these activities with many state and local public health partners including the N.C. DHHS Division of

Aging and Adult Services; the N.C. Departments of Environmental and Natural Resources, Transportation, Commerce, Agriculture and Public Instruction; N.C. Cooperative Extension Services; and universities and nonprofit organizations. One key partnership activity was the release of *North Carolina's Plan to Address Obesity: Healthy Weight and Healthy Communities 2013-2020*.

Healthy NC 2020 Objectives

- ❖ *Reduce the infant mortality racial disparity between whites and African Americans*
- ❖ *Reduce the infant mortality rate*

Division of Public Health programs addressing infant mortality have included:

- ◆ **Community Focused Infant Mortality**, which has provided services for women and their infants with a specific focus on African American and Native American families. Services have included outreach; case management; health education before, during and after pregnancy to improve the chances of a healthy birth; and supportive services for women and their children after delivery. These programs have included Baby Love Plus and Healthy Beginnings and have been in local health departments and community-based organizations across the state. Additional partners have included UNC-Greensboro and UNC-Chapel Hill.
- ◆ **Maternal Health Services**, which has provided a wide range of maternal health services to encourage low-income pregnant women to begin early prenatal care and follow recommended perinatal care guidelines before and after giving birth. State and local public health partners in this effort have included DHHS' Division of Medical Assistance, East Carolina University, UNC-Chapel Hill, private universities and hospitals.
- ◆ **Women's Health Public Education**, which has educated N.C. residents through maternal and child public education/information campaigns. Campaigns have included information about preventing birth defects by encouraging women to consume folic acid before pregnancy, preventing teen pregnancy, preparing for a healthy pregnancy, prenatal care, infant care and appropriate parenting and family planning skills. State and local public health partners in this effort have included DHHS' Division of Medical Assistance and non-profit health organizations.

Healthy NC 2020 Objective

- ❖ *Decrease the percentage of pregnancies that are unintended*

Division of Public Health programs addressing unintended pregnancies have included:

- ◆ **Teen Pregnancy Prevention Initiatives**, which have worked to prevent teen pregnancies by providing educational and health care services to reduce pregnancies among teenage girls and helping teenage parents prevent another unintended pregnancy. Services have been provided by local health departments and community-based organizations, schools and local departments of social services. Other Teen Pregnancy Prevention Initiatives partners have included DHHS' Division of Social Services and Appalachian State University.
- ◆ **Family Planning** has provided family planning services and preventive care to low-income women and men by funding clinics in local health departments and other community-based providers. The aim has been to decrease the number of unplanned pregnancies and decrease the health problems associated with unplanned pregnancies. The service has benefitted the general population with an emphasis on low-income North Carolinians. State and local public health partners in this effort have included DHHS' Division of Social Services and local social services offices.

Healthy NC 2020 Objective

- ❖ *Reduce the percentage of positive results among individuals aged 15 to 24 tested for chlamydia*

Sexually Transmitted Diseases Prevention Activities have prevented the spread of sexually transmitted diseases through testing at the State Laboratory of Public Health, counseling and education and treatment. This has been achieved by:

- ◆ Supporting four local health departments to conduct gonorrhea and chlamydia testing and treatment among high risk populations;
- ◆ Promoting the “Get Real Get Tested Get Treatment” campaign conducting screenings for gonorrhea and chlamydia at college campuses across North Carolina;
- ◆ Providing to local health departments free chlamydia laboratory testing for all women under 25 years of age, all pregnant women and women with symptoms of chlamydia and
- ◆ Purchasing sexually transmitted diseases medications on behalf of all 85 local health departments in North Carolina.

Healthy NC 2020 Objectives

- ❖ *Reduce the percentage of high school students using alcohol in the last 30 days*
- ❖ *Reduce the number of traffic crashes that are alcohol-related*
- ❖ *Reduce the percentage of individuals aged 12 years and older reporting any illicit drug use in the past 30 days*

Some programs addressing these Healthy NC 2020 Objectives are:

- ◆ The **DPH Forensic Tests for Alcohol** Branch has worked to reduce deaths, injuries and health care costs related to impaired driving on North Carolina roads. Services have included providing alcohol and drug training for law enforcement officers to improve their ability to detect and apprehend impaired drivers; procuring another Breath Alcohol Mobile Testing Unit for use at Driving While Impaired (DWI) checking stations to deter impaired driving and promote the belief that DWI enforcement is likely to occur anywhere in the state at any time; and providing and maintaining over 350 evidential alcohol breath testing instruments located at breath testing sites statewide. Additional state and local public health partners in this effort have included the N.C. Department of Public Safety/State Highway Patrol, N.C. Department of Transportation Division of Motor Vehicles/Governors Highway Safety Program and local law enforcement agencies from across the state.
- ◆ The **DPH Injury and Violence Prevention Branch** has monitored injury and violence trends in the state, including events associated with underage alcohol use and illicit drug use.
- ◆ The state's **Controlled Substance Reporting System**, managed by the DHHS Division of Mental Health, Developmental Disabilities and Substance Abuse Services, tracks prescriptions and can be used to identify possible patterns of illicit medication abuse. The **N.C. Child Fatality Task Force** has supported system improvements and procedures to monitor and report possible misuse of its data. The task force has supported Good Samaritan legislation to provide limited immunity from prosecution for reporting drug and alcohol overdoses and use of rescue drugs for opioid overdoses.
- ◆ The Governor's Highway Safety Program established an **Impaired Driving Task Force** and state Impaired Driving Strategic Plan. The DPH Injury and Violence Prevention Branch facilitated the development of the strategic plan.

Healthy NC 2020 Objective

❖ *Reduce the cardiovascular disease mortality rate*

The **DPH Heart Disease and Stroke Prevention** programs have utilized a multipronged approach to address heart disease and stroke that encompasses policy, system and environmental changes. This approach has been guided by the legislatively appointed Justus-Warren Heart Disease and Stroke Prevention Task Force (JWTF), the N.C. Heart Disease and Stroke Prevention Program (HDSP), the N.C. Stroke Care Collaborative (NCSCC) in partnership with the University of N.C. Gillings School of Global Public Health, and many other partners. Many of the strategies are reflected in the national Millions Hearts Campaign to reduce the national number of heart attacks and strokes by 1 million by 2017. The focus is on evidence-based

practices to address the ABCS of cardiovascular prevention (**A**spirin therapy when appropriate; **B**lood pressure control [including sodium reduction]; **C**holesterol control; and **S**moking cessation). North Carolina's main focus during this past year has been on hypertension, a leading risk factor for heart disease and stroke. Quality improvement has been a focus of the NCSCC for acute stroke care and for the DPH Community Transformation Grant in addressing community-clinical linkages for blood pressure control through primary care settings and community programs to support patients and families.

Healthy NC 2020 Objective

❖ *Decrease the percentage of adults with diabetes*

The **DPH Diabetes Prevention and Control** service has worked with over 40 local health departments to provide diabetes self-management education to over 5,000 North Carolinians. Of these people, over half who completed the program were able to reduce their Hemoglobin A1c (average blood glucose) to 7 percent or less and obtained controlled blood pressure of less than 120 over 80. Additionally, five local health departments/districts offered diabetes primary prevention programs utilizing the Wake Forest University curriculum. Participants in these programs were able to lose weight and reduce their risk for diabetes. In addition to working with local health departments, the Diabetes Prevention and Control Branch worked with the DPH Women's and Children's Health Section to offer continuing education about treating gestational diabetes to providers throughout the state. They provided English and Spanish education message magnets advising women who have had gestational diabetes that they and their children were at increased risk of developing diabetes and encouraging small behavior changes to avoid developing diabetes. Finally, the Diabetes Prevention and Control Branch worked with multiple partners, including Walgreens and the DPH Immunization Branch, and local Senior Centers to provide over 1,500 flu vaccinations to adults during the fall elections.

Proposed or Planned Steps

North Carolina has prepared to take additional steps toward continuing to improve the health of our citizens. As part of its five-year strategic planning initiated in 2011, the DHHS Division of Public Health identified the need for a Healthy NC 2020 Implementation Team to track and report the state's progress in meeting these health improvement goals. This team has consisted of representatives across multiple sections and branches of the Division of Public Health, as well as representation from DPH partner agencies such as local health departments; the Center for Public Health Quality; the Center for Healthy North Carolina; the DHHS Office of Rural Health and Community Care and DHHS' Division of Mental Health, Developmental Disabilities and Substance Abuse Services. This team has been charged with making recommendations to the State Health Director on priority areas to focus Healthy NC 2020 efforts statewide, including

state and local efforts to increase the use of evidence-based strategies to address Healthy NC 2020 objectives.

An additional ongoing effort designed to contribute to the work of reaching the Healthy NC 2020 goals is the Community Transformation Grant Program funded by the Centers for Disease Control and Prevention. The Community Transformation Grant Program has targeted Healthy NC 2020 focus areas around Tobacco Use, Physical Activity and Nutrition and Chronic Disease. The Community Transformation Grant Program funding to 10 multi-county regions has supported public health efforts to reduce chronic diseases, promote healthier lifestyles, reduce health disparities and control health care spending through policy and environmental change. The Community Transformation Grant Program has also recognized the importance of evidence-based strategies to maximize both outcomes and efficient use of resources and the need to encourage communities' use of evidence-based strategies.

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Appendix A: Healthy North Carolina 2020 Objectives Compared to North Carolina Goals and the United States

The State Goal is the Healthy North Carolina 2020 target as established in 2011.

	North Carolina	State Goal	United States
Tobacco Use			
Decrease the percentage of adults who are current smokers ¹	20.9% (2012)	Not comparable	19.6% (2012)
Decrease the percentage of high school students reporting current use of any tobacco product	22.5% (2011)	15.0%	23.4% (2011)
Decrease the percentage of people exposed to secondhand smoke in the workplace in the past seven days ¹	8.6% (2012)	0%	Not available
Physical Activity and Nutrition			
Increase the percentage of high school students who are neither overweight nor obese	71.2% (2011)	79.2%	71.8% (2011)
Increase the percentage of adults getting the recommended amount of physical activity ²	46.4% (2009)	60.6%	51.0% (2009)
Increase the percentage of adults who consume five or more servings of fruits and vegetables per day ²	20.6% (2009)	29.3%	23.4% (2009)
Injury and Violence			
Reduce the unintentional poisoning mortality rate (per 100,000 population)	11.7 (2012)	9.9	10.7 (2011)
Reduce the unintentional falls mortality rate (per 100,000 population)	9.6 (2012)	5.3	7.8 (2011)
Reduce the homicide rate (per 100,000 population)	6.0 (2012)	6.7	5.2 (2011)
Maternal and Infant Health			
Reduce the infant mortality racial disparity between whites and African Americans	2.53 (2012)	1.92	2.26 (2011)
Reduce the infant mortality rate (per 1,000 live births)	7.4 (2012)	6.3	6.05 (2011)
Reduce the percentage of women who smoke during pregnancy ³	10.6% (2012)	Not comparable	Not available
Sexually Transmitted Disease and Unintended Pregnancy			
Decrease the percentage of pregnancies that are unintended	42.7% (2011)	30.9%	Not available
Reduce the percentage of positive results among individuals aged 15 to 24 tested for chlamydia	10.9% (2011)	8.7%	Not available
Reduce the rate of new HIV infection diagnoses (per 100,000 population)	17.3 (2011)	22.2	15.9 (2011)
Substance Abuse			
Reduce the percentage of high school students who had alcohol on one or more of the past 30 days	34.3% (2011)	26.4%	38.7% (2011)
Reduce the percentage of traffic crashes that are alcohol-related	5.1% (2011)	4.7%	Not available
Reduce the percentage of individuals aged 12 years and older reporting any illicit drug use in the past 30 days	8.9% (2010–11)	6.6%	8.8% (2010–11)
Mental Health			
Reduce the suicide rate (per 100,000 population)	12.9 (2012)	8.3	12.0 (2011)
Decrease the average number of poor mental health days among adults in the past 30 days ¹	3.9 (2012)	Not comparable	Not available
Reduce the rate of mental health-related visits to emergency departments (per 10,000 population)	106.5 (2011)	82.8	Not available

	North Carolina	State Goal	United States
Oral Health			
Increase the percentage of children aged 1–5 years enrolled in Medicaid who received any dental service during the previous 12 months	57.3% (2012)	56.4%	40.3% (2011)
Decrease the average number of decayed, missing or filled teeth among kindergartners	1.5 (2009-10)	1.1	Not available
Decrease the percentage of adults who have had permanent teeth removed due to tooth decay or gum disease ¹	48.3% (2012)	Not comparable	44.5% (2012)
Environmental Health			
Increase the percentage of air monitor sites meeting the current ozone standard of 0.075 ppm	80.5% (2010-12)	100.0%	Not available
Increase the percentage of the population being served by community water systems (CWS) with no maximum contaminant level violations	97.4% (2012)	95.0%	94.7% (2012)
Reduce the mortality rate from work-related injuries (per 100,000 equivalent full-time workers)	3.7 (2011)	3.5	3.5 (2011)
Infectious Disease and Foodborne Illness			
Increase the percentage of children aged 19–35 months who receive the recommended vaccines	75.3% (2011)	91.3%	77.0% (2011)
Reduce the pneumonia and influenza mortality rate (per 100,000 population)	19.6 (2012)	13.5	15.7 (2011)
Decrease the average number of critical violations per restaurant/food stand	6.5 (2011)	5.5	Not available
Social Determinants of Health			
Decrease the percentage of individuals living in poverty	15.4% (2011)	12.5%	15.0% (2011)
Increase the four-year high school graduation rate	82.5% (2012-13)	94.6%	Not available
Decrease the percentage of people spending more than 30 percent of their income on rental housing	47.9% (2011)	36.1%	49.3% (2011)
Chronic Disease			
Reduce the cardiovascular disease mortality rate (per 100,000 population)	237.2 (2012)	161.5	227.1 (2011)
Decrease the percentage of adults with diabetes ¹	10.4% (2012)	Not comparable	9.7% (2012)
Reduce the colorectal cancer mortality rate (per 100,000 population)	15.1 (2012)	10.1	15.6 (2010)
Cross-cutting			
Increase average life expectancy (years)	77.6 (2012)	79.5	78.7 (2011)
Increase the percentage of adults reporting good, very good or excellent health ¹	80.7% (2012)	Not comparable	83.1% (2012)
Reduce the percentage of non-elderly uninsured individuals (aged less than 65 years)	18.8% (2011)	8.0%	17.9% (2011)
Increase the percentage of adults who are neither overweight nor obese ¹	34.2% (2012)	Not comparable	36.0% (2012)

¹ In 2011, the Behavioral Risk Factor Surveillance System methodology changed, so results are not directly comparable to the previously established target.

² In 2011, the definition for recommended amount of physical activity and fruit and vegetable consumption changed. Therefore, comparable data for these measures are not available at this time.

³ The methodology for collecting smoking data on the birth certificate was modified in 2011, so results are not directly comparable to the previously established target.

Appendix B: Additional Data for Selected Healthy North Carolina 2020 Objectives

Three objectives do not have data below the state level geographically:

- *The Behavioral Risk Factor Surveillance System (BRFSS) is the source of data on exposure to secondhand smoke in the workplace in North Carolina.*
- *The Pregnancy Risk Assessment Monitoring System (PRAMS) is the source of data on unintended pregnancies in North Carolina.*
- *The National Survey on Drug Use and Health, conducted by the federal Substance Abuse and Mental Health Services Administration provides state level estimates on the use of illicit drugs.*

Due to the sample size of these surveys, only state level estimates can be calculated.

Note: All data tables in Appendix B are the most recent available as of August 31, 2013.

North Carolina Adults Who Are Current Smokers by County, 2010

County	Percent	C.I. (95%)*	County	Percent	C.I. (95%)*
Alamance	27.8	21.9-34.5	Johnston	20.0	13.4-28.8
Alexander	18.5	12.0-27.3	Jones	31.0	18.7-46.7
Alleghany	25.3	18.5-33.5	Lee	25.9	19.8-33.0
Anson	22.1	15.4-30.8	Lenoir	19.6	14.1-26.5
Ashe	21.1	15.4-28.3	Lincoln	16.5	11.3-23.4
Avery	20.9	16.1-26.7	McDowell	18.2	11.0-28.5
Beaufort	20.7	13.9-29.8	Macon	15.3	8.6-25.8
Bertie	22.7	16.3-30.8	Madison	24.6	17.6-33.3
Bladen	21.5	14.0-31.5	Martin	23.1	14.2-35.3
Brunswick	22.5	14.9-32.3	Mecklenburg	11.9	8.9-15.7
Buncombe	14.5	9.5-21.4	Mitchell	21.4	15.7-28.5
Burke	23.0	17.6-29.6	Montgomery	20.3	13.4-29.4
Cabarrus	17.5	13.6-22.3	Moore	20.6	14.0-29.3
Caldwell	25.0	19.7-31.1	Nash	20.5	15.3-26.8
Camden	22.8	16.0-31.5	New Hanover	18.9	14.2-24.6
Carteret	25.9	18.9-34.4	Northampton	29.7	18.0-44.8
Caswell	13.8	7.7-23.4	Onslow	32.0	23.0-42.7
Catawba	18.7	14.4-23.9	Orange	14.6	8.2-24.9
Chatham	17.5	11.6-25.6	Pamlico	25.6	18.4-34.3
Cherokee	20.7	14.0-29.6	Pasquotank	27.1	17.7-39.1
Chowan	25.6	14.9-40.3	Pender	26.2	18.8-35.3
Clay	24.1	17.9-31.7	Perquimans	22.7	16.3-30.8
Cleveland	19.9	14.2-27.3	Person	21.4	14.8-29.9
Columbus	27.1	20.9-34.3	Pitt	20.7	15.6-27.0
Craven	21.3	15.1-29.1	Polk	22.2	17.1-28.4
Cumberland	19.0	14.3-24.7	Randolph	21.4	16.4-27.5
Currituck	25.6	18.9-33.7	Richmond	28.3	20.2-38.2
Dare	33.6	22.2-47.3	Robeson	24.8	19.3-31.2
Davidson	26.4	20.9-32.8	Rockingham	32.3	20.7-46.6
Davie	24.4	19.2-30.5	Rowan	19.2	14.5-25.1
Duplin	22.2	16.6-29.1	Rutherford	26.1	19.1-34.7
Durham	15.8	12.6-19.6	Sampson	21.2	14.6-29.7
Edgecombe	23.4	17.2-30.9	Scotland	30.3	21.4-40.8
Forsyth	19.2	15.2-24.0	Stanly	28.5	18.9-40.7
Franklin	29.3	21.9-38.0	Stokes	44.4	31.6-58.0
Gaston	26.6	19.8-34.9	Surry	28.3	23.1-34.2
Gates	25.6	18.4-34.3	Swain	20.5	14.8-27.7
Graham	26.1	20.1-33.2	Transylvania	15.4	8.7-25.8
Granville	23.9	16.7-33.0	Tyrrell	25.6	18.4-34.3
Greene	22.7	16.3-30.8	Union	18.3	14.2-23.3
Guilford	17.8	14.0-22.4	Vance	18.2	10.9-28.8
Halifax	21.6	16.1-28.3	Wake	15.8	12.7-19.6
Harnett	29.0	17.0-45.0	Warren	23.2	14.1-35.7
Haywood	22.3	14.6-32.6	Washington	23.8	16.9-32.4
Henderson	17.7	11.3-26.6	Watauga	18.1	13.0-24.7
Hertford	24.6	17.7-33.0	Wayne	25.2	19.0-32.7
Hoke	17.5	11.4-26.0	Wilkes	25.7	19.2-33.6
Hyde	26.0	19.0-34.4	Wilson	18.9	13.0-26.5
Iredell	18.7	14.4-23.9	Yadkin	21.4	13.7-31.9
Jackson	19.2	11.8-29.7	Yancey	27.3	19.8-36.4

* C.I. (95%) = Confidence Interval (at 95% probability level).

Counties with Current Smoking Prevalence Estimates that are based on 2008–2010 Behavioral Risk Factor Surveillance System individual county data and 2010 Behavioral Risk Factor Surveillance System sub-group data: Alexander, Alleghany, Anson, Avery, Beaufort, Bladen, Camden, Carteret, Caswell, Chowan, Clay, Columbus, Craven, Currituck, Dare, Davie, Duplin, Edgecombe, Franklin, Graham, Granville, Halifax, Hertford, Hyde, Jones, Lee, Lenoir, Madison, Mitchell, Montgomery, Nash, Northampton, Pasquotank, Pender, Person, Polk, Richmond and Sampson.

Counties with Current Smoking Prevalence Estimates equal to 2010 Behavioral Risk Factor Surveillance System sub-group estimate due to Relative Standard Error > 30 percent: Bertie, Chatham, Gates, Greene, Martin, Pamlico, Perquimans and Tyrrell.

Data Source: Behavioral Risk Factor Surveillance System, State Center for Health Statistics.

Percentage of North Carolina High School Students Reporting Current Use of Any Tobacco Product, 2011

	Eastern/ Coastal Region	Central/ Piedmont Region	Western/ Mountain Region
Percentage of high school students reporting current use of any tobacco product, 2011	24.5%	20.4%	28.8%

Eastern/Coastal Region includes the following counties—Beaufort, Bertie, Bladen, Brunswick, Camden, Carteret, Chowan, Columbus, Craven, Currituck, Dare, Duplin, Edgecombe, Gates, Greene, Halifax, Hertford, Hyde, Johnston, Jones, Lenoir, Martin, Nash, New Hanover, Northampton, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Pitt, Sampson, Tyrrell, Warren, Washington, Wayne and Wilson counties.

Central/Piedmont Region includes the following counties—Alamance, Anson, Cabarrus, Caswell, Chatham, Cumberland, Davidson, Davie, Durham, Forsyth, Franklin, Gaston, Granville, Guilford, Harnett, Hoke, Iredell, Lee, Lincoln, Mecklenburg, Montgomery, Moore, Orange, Person, Randolph, Richmond, Robeson, Rockingham, Rowan, Scotland, Stanly, Stokes, Surry, Union, Vance, Wake and Yadkin counties.

Western/Mountain Region includes the following counties—Alexander, Alleghany, Ashe, Avery, Buncombe, Burke, Caldwell, Catawba, Cherokee, Clay, Cleveland, Graham, Haywood, Henderson, Jackson, McDowell, Macon, Madison, Mitchell, Polk, Rutherford, Swain, Transylvania, Watauga, Wilkes and Yancey counties.

Data Source: North Carolina Youth Tobacco Survey.

**Percentage of North Carolina High School Students
Who Are neither Overweight nor Obese, 2009**

	Eastern/ Coastal Region	Central/ Piedmont Region	Western/ Mountain Region
Percentage of high school students who are neither overweight nor obese, 2009	69.2%	73.9%	69.5%

Data Source: North Carolina Youth Risk Behavior Survey.

**North Carolina Adults Getting the
Recommended Amount of Physical Activity* by County, 2009**

County	Percent	C.I. (95%)**
Alamance	47.9	38.7–57.2
Buncombe	53.6	47.2–59.9
Cabarrus	45.2	37.3–53.3
Catawba	40.6	33.7–47.9
Cumberland	50.0	43.1–56.9
Davidson	45.5	38.8–52.3
Durham	42.9	36.0–50.1
Forsyth	42.1	35.3–49.2
Gaston	45.2	38.1–52.6
Guilford	48.0	40.0–56.1
Iredell	48.9	41.8–56.1
Johnston	44.0	36.9–51.4
Mecklenburg	46.5	41.1–52.0
New Hanover	53.9	45.9–61.7
Onslow	56.6	50.0–63.0
Orange	44.5	38.1–51.0
Pitt	42.3	34.9–50.0
Randolph	52.1	44.5–59.7
Robeson	31.9	25.6–39.0
Rowan	39.4	32.9–46.3
Union	55.2	47.7–62.5
Wake	47.4	41.6–53.4
Wayne	43.7	36.4–51.2

*Meets recommendation = Moderate physical activity for 30 or more minutes per day, five or more days per week or vigorous physical activity for 20 or more minutes per day, three or more days per week.

**C.I. (95%) = Confidence Interval (at 95% probability level).

Data are presented for the 23 counties for which sufficient sample sizes allow for county level estimates.

Data Source: Behavioral Risk Factor Surveillance System, State Center for Health Statistics.

**North Carolina Infant Mortality Rate (per 1,000 Live Births)
by County of Residence, 2008–2012**

County	Infant Deaths	Infant Mortality Rate	County	Infant Deaths	Infant Mortality Rate
Alamance	67	7.3	Johnston	77	6.6
Alexander	10	5.3	Jones	9	18.5
Alleghany	2	4.2	Lee	38	8.7
Anson	10	7.2	Lenoir	35	10.0
Ashe	5	3.9	Lincoln	34	8.2
Avery	8	10.3	McDowell	11	4.6
Beaufort	17	6.3	Macon	10	5.8
Bertie	15	14.1	Madison	8	8.6
Bladen	15	8.0	Martin	12	9.0
Brunswick	38	7.0	Mecklenburg	418	5.9
Buncombe	70	5.3	Mitchell	1	1.3
Burke	39	8.4	Montgomery	21	12.2
Cabarrus	52	4.3	Moore	27	5.6
Caldwell	41	10.0	Nash	55	9.3
Camden	4	8.8	New Hanover	52	4.5
Carteret	22	7.2	Northampton	8	7.6
Caswell	9	8.6	Onslow	144	6.9
Catawba	59	6.3	Orange	36	5.5
Chatham	17	5.1	Pamlico	7	13.6
Cherokee	10	8.4	Pasquotank	27	10.4
Chowan	7	8.4	Pender	18	6.1
Clay	4	9.5	Perquimans	11	16.7
Cleveland	51	8.9	Person	14	6.5
Columbus	37	11.0	Pitt	124	11.2
Craven	69	8.2	Polk	5	7.1
Cumberland	253	8.6	Randolph	52	6.2
Currituck	10	8.8	Richmond	26	8.6
Dare	8	4.1	Robeson	127	12.5
Davidson	78	8.6	Rockingham	51	10.5
Davie	10	4.8	Rowan	56	6.9
Duplin	36	9.1	Rutherford	27	7.6
Durham	150	6.9	Sampson	52	11.9
Edgecombe	31	8.7	Scotland	28	11.5
Forsyth	238	10.0	Stanly	24	7.1
Franklin	29	8.4	Stokes	18	8.5
Gaston	112	8.5	Surry	38	9.2
Gates	4	7.1	Swain	7	7.5
Graham	3	6.5	Transylvania	9	6.5
Granville	14	4.7	Tyrrell	2	8.9
Greene	12	10.1	Union	72	5.7
Guilford	278	9.0	Vance	25	8.3
Halifax	37	11.9	Wake	427	6.7
Harnett	72	8.3	Warren	10	10.6
Haywood	11	3.9	Washington	10	13.9
Henderson	28	5.0	Watauga	4	2.2
Hertford	20	14.7	Wayne	90	10.5
Hoke	33	7.1	Wilkes	28	7.9
Hyde	3	11.7	Wilson	46	8.8
Iredell	59	6.4	Yadkin	14	6.6
Jackson	16	7.9	Yancey	7	8.0

Note: Rates based on less than 10 deaths are unreliable and should be interpreted with caution.

Data Source: Vital Statistics, State Center for Health Statistics.

North Carolina Infant Mortality Racial Disparity between Whites and African Americans by County of Residence, 2008–2012

County	White, Non-Hispanic		African American, Non-Hispanic		Ratio
	Infant Deaths	Infant Mortality Rate	Infant Deaths	Infant Mortality Rate	
Alamance	31	6.1	25	13.5	2.21
Alexander	7	4.3	2	24.1	5.60
Alleghany	2	5.2	0	0.0	0.00
Anson	2	3.6	8	10.5	2.92
Ashe	5	4.3	0	0.0	0.00
Avery	8	11.6	0	0.0	0.00
Beaufort	7	4.9	10	11.8	2.41
Bertie	1	3.6	13	17.1	4.75
Bladen	4	4.6	10	15.3	3.33
Brunswick	26	6.4	7	10.3	1.61
Buncombe	51	5.0	11	9.8	1.96
Burke	29	8.2	4	17.2	2.10
Cabarrus	26	3.5	18	8.9	2.54
Caldwell	30	8.6	6	27.8	3.23
Camden	4	10.7	0	0.0	0.00
Carteret	19	7.5	0	0.0	0.00
Caswell	4	6.0	4	12.9	2.15
Catawba	32	5.1	16	17.3	3.39
Chatham	12	6.4	0	0.0	0.00
Cherokee	8	7.6	0	0.0	0.00
Chowan	1	2.5	5	13.1	5.24
Clay	3	8.1	0	0.0	0.00
Cleveland	30	7.7	20	13.1	1.70
Columbus	14	8.2	20	17.2	2.10
Craven	41	7.6	22	11.9	1.57
Cumberland	93	6.6	137	13.7	2.08
Currituck	9	8.8	0	0.0	0.00
Dare	4	2.6	0	0.0	0.00
Davidson	51	7.6	16	18.0	2.37
Davie	9	5.4	1	8.2	1.52
Duplin	12	7.9	17	19.4	2.46
Durham	31	3.9	96	12.8	3.28
Edgecombe	8	8.3	22	9.4	1.13
Forsyth	76	7.0	128	19.1	2.73
Franklin	14	6.9	13	14.4	2.09
Gaston	66	7.4	41	16.3	2.20
Gates	3	8.0	1	5.7	0.71
Graham	2	5.2	0	0.0	0.00
Granville	9	5.3	3	3.4	0.64
Greene	4	8.6	6	14.6	1.70
Guilford	70	5.5	163	13.6	2.47
Halifax	5	5.4	29	15.3	2.83
Harnett	29	5.5	37	21.0	3.82
Haywood	9	3.6	1	28.6	7.94
Henderson	22	5.5	1	4.4	0.80
Hertford	4	10.3	16	17.5	1.70
Hoke	10	4.5	16	14.1	3.13
Hyde	2	12.0	1	17.2	1.43
Iredell	27	4.2	26	19.1	4.55
Jackson	12	8.3	0	0.0	0.00
Johnston	36	5.0	25	14.4	2.88
Jones	1	3.1	6	46.9	15.1
Lee	14	7.0	14	16.0	2.29
Lenoir	9	6.2	25	16.0	2.58

North Carolina Infant Mortality Racial Disparity between Whites and African Americans by County of Residence, 2008–2012

County	White, Non-Hispanic		African American, Non-Hispanic		Ratio
	Infant Deaths	Infant Mortality Rate	Infant Deaths	Infant Mortality Rate	
Lincoln	25	7.4	8	32.1	4.34
McDowell	9	4.4	1	14.5	3.30
Macon	9	6.7	0	0.0	0.00
Madison	8	9.1	0	0.0	0.00
Martin	5	8.4	7	10.7	1.27
Mecklenburg	86	2.9	244	11.0	3.79
Mitchell	1	1.6	0	0.0	0.00
Montgomery	3	3.6	9	26.8	7.44
Moore	14	4.3	9	11.0	2.56
Nash	12	4.8	39	15.1	3.15
New Hanover	21	2.7	25	11.3	4.19
Northampton	0	0.0	8	11.6	*
Onslow	88	5.9	35	13.4	2.27
Orange	15	3.9	14	15.8	4.05
Pamlico	5	13.2	2	21.5	1.63
Pasquotank	9	6.5	18	18.2	2.80
Pender	6	2.9	8	17.7	6.10
Perquimans	6	13.0	4	23.8	1.83
Person	3	2.3	11	16.7	7.26
Pitt	29	5.5	87	19.2	3.49
Polk	4	7.2	0	0.0	0.00
Randolph	36	6.0	6	12.7	2.12
Richmond	9	5.7	16	15.7	2.75
Robeson	19	9.8	34	14.5	1.48
Rockingham	30	8.9	19	20.5	2.30
Rowan	34	6.3	14	9.6	1.52
Rutherford	18	6.3	6	14.9	2.37
Sampson	18	10.8	15	13.9	1.29
Scotland	9	10.6	18	16.2	1.53
Stanly	12	4.7	10	21.4	4.55
Stokes	16	8.2	2	27.0	3.29
Surry	35	11.2	2	13.0	1.16
Swain	3	5.9	0	0.0	0.00
Transylvania	8	6.6	1	18.5	2.80
Tyrrell	2	18.0	0	0.0	0.00
Union	26	3.3	26	14.4	4.36
Vance	6	7.1	17	9.8	1.38
Wake	156	4.6	203	14.3	3.11
Warren	3	11.5	7	12.1	1.05
Washington	2	8.9	8	18.3	2.06
Watauga	3	1.9	0	0.0	0.00
Wayne	29	7.3	56	19.8	2.71
Wilkes	20	6.9	2	16.0	2.32
Wilson	8	4.8	29	13.0	2.24
Yadkin	13	10.2	2	27.8	4.34
Yancey	6	9.9	0	0.0	0.00

*Disparity exists, however ratio cannot be calculated because there were zero infant deaths to Non-Hispanic Whites.

Note: Rates based on less than 10 deaths are unreliable and should be interpreted with caution.

Data Source: Vital Statistics, State Center for Health Statistics.

**Positive Results among Individuals Aged 15 to 24
Tested for Chlamydia by County, 2011**

County	Percentage	County	Percentage
Alamance	14.3	Johnston	8.6
Alexander	8.4	Jones	10.1
Alleghany	5.6	Lee	12.1
Anson	11.9	Lenoir	12.7
Ashe	3.4	Lincoln	6.5
Avery	2.6	McDowell	7.7
Beaufort	11.9	Macon	7.7
Bertie	11.6	Madison	7.9
Bladen	9.5	Martin	12.0
Brunswick	8.2	Mecklenburg	n/a
Buncombe	9.7	Mitchell	1.8
Burke	8.5	Montgomery	7.3
Cabarrus	10.2	Moore	10.0
Caldwell	7.5	Nash	13.0
Camden	1.9	New	9.9
Carteret	10.2	Northampton	17.2
Caswell	7.7	Onslow	11.4
Catawba	8.6	Orange	10.1
Chatham	8.1	Pamlico	10.2
Cherokee	5.9	Pasquotank	12.9
Chowan	16.2	Pender	7.8
Clay	7.1	Perquimans	12.1
Cleveland	10.4	Person	10.3
Columbus	13.3	Pitt	13.1
Craven	11.2	Polk	14.3
Cumberland	16.2	Randolph	11.2
Currituck	9.6	Richmond	16.1
Dare	5.8	Robeson	12.1
Davidson	8.9	Rockingham	12.2
Davie	8.0	Rowan	11.5
Duplin	10.4	Rutherford	8.1
Durham	n/a	Sampson	9.6
Edgecombe	12.4	Scotland	12.7
Forsyth	n/a	Stanly	12.5
Franklin	9.3	Stokes	7.7
Gaston	11.5	Surry	6.1
Gates	7.4	Swain	6.5
Graham	4.3	Transylvania	8.1
Granville	9.1	Tyrrell	14.2
Greene	11.6	Union	10.4
Guilford	n/a	Vance	13.0
Halifax	15.9	Wake	n/a
Harnett	9.0	Warren	11.0
Haywood	8.0	Washington	11.8
Henderson	7.3	Watauga	4.5
Hertford	21.0	Wayne	13.0
Hoke	14.0	Wilkes	5.6
Hyde	3.6	Wilson	14.3
Iredell	11.6	Yadkin	6.7
Jackson	7.4	Yancey	7.5

The data come from the Infertility Prevention Program, which screens young women ages 15–24 in public family planning, obstetrical and sexually transmitted disease clinics. The data cover 95 N.C. counties (all except Durham, Forsyth, Guilford, Mecklenburg and Wake) and are supplied directly from the State Laboratory of Public Health. The other five do have the same testing scheme in their local health departments, but they use outside laboratories so N.C. DPH does not have their testing data. At this point, there is no requirement for the five non-Infertility Prevention Program local health departments to report these data to N.C. DPH.

Data Source: Infertility Prevention Program, Communicable Disease Branch.

**Percentage of North Carolina High School Students
Who Had Alcohol on One or More of the Past 30 Days, 2009**

	Eastern/ Coastal Region	Central/ Piedmont Region	Western/ Mountain Region
Percentage of high school students who had alcohol on one or more of the past 30 days, 2009	37.8%	34.9%	37.0%

Data Source: North Carolina Youth Risk Behavior Survey.

**North Carolina Traffic Crashes That Are Alcohol-Related
By County of Crash, 2011**

County	Percentage	County	Percentage
Alamance	5.81	Johnston	6.20
Alexander	7.14	Jones	6.85
Alleghany	9.55	Lee	4.46
Anson	5.74	Lenoir	5.02
Ashe	6.36	Lincoln	6.91
Avery	7.57	McDowell	4.81
Beaufort	5.08	Macon	5.50
Bertie	4.48	Madison	7.36
Bladen	3.91	Martin	4.83
Brunswick	6.17	Mecklenburg	3.87
Buncombe	6.11	Mitchell	3.69
Burke	4.93	Montgomery	9.91
Cabarrus	4.14	Moore	5.01
Caldwell	7.32	Nash	5.88
Camden	2.86	New Hanover	5.12
Carteret	6.62	Northampton	5.22
Caswell	6.12	Onslow	6.99
Catawba	5.35	Orange	6.27
Chatham	4.56	Pamlico	8.33
Cherokee	8.14	Pasquotank	5.19
Chowan	5.58	Pender	5.74
Clay	6.77	Perquimans	5.76
Cleveland	5.63	Person	4.52
Columbus	4.52	Pitt	4.48
Craven	4.62	Polk	6.55
Cumberland	4.76	Randolph	5.81
Currituck	5.90	Richmond	6.64
Dare	6.90	Robeson	6.32
Davidson	6.21	Rockingham	6.69
Davie	5.97	Rowan	4.76
Duplin	4.96	Rutherford	6.16
Durham	3.94	Sampson	6.35
Edgecombe	7.66	Scotland	6.61
Forsyth	5.20	Stanly	4.70
Franklin	5.52	Stokes	6.29
Gaston	5.83	Surry	7.10
Gates	5.00	Swain	4.68
Graham	4.70	Transylvania	5.87
Granville	6.18	Tyrrell	4.76
Greene	5.66	Union	5.50
Guilford	5.37	Vance	5.58
Halifax	6.38	Wake	3.75
Harnett	6.29	Warren	7.54
Haywood	6.39	Washington	4.07
Henderson	5.10	Watauga	4.98
Hertford	5.49	Wayne	5.59
Hoke	6.77	Wilkes	6.43
Hyde	4.81	Wilson	4.38
Iredell	4.72	Yadkin	6.18
Jackson	7.11	Yancey	5.79

Data Source: Highways Safety Research Center, University of North Carolina at Chapel Hill.

**North Carolina Cardiovascular Disease Mortality Rate
(per 100,000 Population) by County of Residence, 2007-2011**

County	Age-Adjusted Death Rate	County	Age-Adjusted Death Rate
North Carolina	241.8	Johnston	301.0
Alamance	245.2	Jones	348.3
Alexander	248.1	Lee	251.0
Alleghany	258.3	Lenoir	336.5
Anson	315.0	Lincoln	314.7
Ashe	245.3	McDowell	256.5
Avery	226.6	Macon	226.8
Beaufort	288.3	Madison	245.4
Bertie	284.9	Martin	368.4
Bladen	344.9	Mecklenburg	198.1
Brunswick	226.9	Mitchell	290.4
Buncombe	218.3	Montgomery	216.1
Burke	253.8	Moore	187.4
Cabarrus	237.1	Nash	250.3
Caldwell	267.4	New Hanover	236.8
Camden	225.8	Northampton	259.1
Carteret	256.9	Onslow	242.3
Caswell	253.2	Orange	185.7
Catawba	237.7	Pamlico	235.7
Chatham	219.8	Pasquotank	265.2
Cherokee	264.3	Pender	207.1
Chowan	255.5	Perquimans	246.6
Clay	216.6	Person	296.3
Cleveland	284.7	Pitt	254.8
Columbus	336.0	Polk	209.0
Craven	240.9	Randolph	239.5
Cumberland	272.5	Richmond	355.3
Currituck	243.6	Robeson	294.5
Dare	228.7	Rockingham	273.5
Davidson	274.8	Rowan	255.8
Davie	205.7	Rutherford	313.5
Duplin	263.3	Sampson	268.1
Durham	206.2	Scotland	323.3
Edgecombe	359.1	Stanly	274.8
Forsyth	201.0	Stokes	258.0
Franklin	229.9	Surry	257.0
Gaston	277.6	Swain	337.5
Gates	261.7	Transylvania	208.9
Graham	252.0	Tyrrell	328.3
Granville	250.9	Union	231.2
Greene	317.3	Vance	272.3
Guilford	214.5	Wake	197.5
Halifax	306.4	Warren	248.3
Harnett	271.0	Washington	413.6
Haywood	251.0	Watauga	216.0
Henderson	214.0	Wayne	274.4
Hertford	271.4	Wilkes	223.5
Hoke	297.9	Wilson	249.8
Hyde	312.5	Yadkin	242.4
Iredell	264.5	Yancey	225.9
Jackson	214.9		

*The age-adjusted death rate is a death rate that controls for the effects of differences in population age distributions.

Data Source: Vital Statistics, State Center for Health Statistics.

Percentage of North Carolina Adults with Diabetes by County, 2012

County	Percent	C.I. (95%)*
North Carolina	10.4	9.8-11.1
Buncombe	10.3	7.2-14.6
Cumberland	12.1	9.0-15.9
Durham	8.0	5.7-11.3
Forsyth	9.8	7.0-13.7
Gaston	12.4	9.1-16.8
Guilford	10.9	7.9-14.8
Mecklenburg	9.5	7.1-12.5
New Hanover	9.8	6.6-14.3
Union	5.7	3.7- 8.8
Wake	7.0	5.1- 9.4

* C.I. (95%) = Confidence Interval (at 95% probability level).

PLEASE NOTE: Due to changes in the weighting methodology and other factors, results from 2012 are NOT comparable to previous years.

Data are presented for the 10 counties for which sufficient sample sizes allow for county level estimates.

Data Source: Behavioral Risk Factor Surveillance System, State Center for Health Statistics.